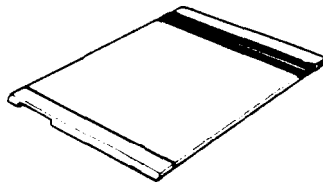
Scanner *main* unit

Document cover

Power *cable*

## Scanner Features

The ES-300C is a low-cost, **high-resolution** color image scanner for use with A4 or letter-size **sheets**. The **ES-300C** offers the following features:

- Uses a basic resolution of **300 dots** per inch (**dpi**)
- Produces full-color scanning by means of an **8-bit A/D converter**
- Scans up to 256 **monochrome** levels
- Reads A4 and **letter-size sheets**
- Offers high quality at a low price
- Functions with a variety of **printers** through **selectable** resolution **settings**
- Reduces and **enlarges images** from 50% to 200% of original **size**
- Performs **line-sequence** (one-time) color reading
- **Offers** tone correction levels and other **processing** features
- Employs color correction tables for various printer types
- **Functions** with a high-speed interface
- **Uses** the **ESC/I-B3 software** command level
- Comes equipped with two standard **interfaces**:  
     Bidirectional parallel interface  
     **RS-232C** **serial** interface
- **Offers** an optional SCSI interface for use with an Apple Macintosh

## Scanner Specifications

<b>Type</b>	Flat bed color image <b>scanner</b>
<b>Subscanning Method (Vertical Scan)</b>	Movement of the reading head
<b>Photoelectric Device</b>	CCD (charge coupled device) line <b>sensor</b>
<b>Manuscript Size</b>	A4 sue: 8.5 inches (216 mm) x 11.7 inches ( <b>297</b> mm)
<b>Maximum Effective Picture Elements</b>	2552 x 3508 <b>pixels</b> at 300 dpr (at 100% <b>image size</b> )

**Basic Resolution**      **Horizontal** scan: 300 dpi  
                                  **Vertical** scan: 300 dpi

**Command Selectable Resolutions** (dots per inch)      600, 480, 400, 360, 320, 300, 240, 200; 180; 150, 144, 120, 100, 90, 80, 75, 72, 50

You can select a **resolution** through a software command.

**Reading Sequence**      There are two modes of color **scanning**: page sequence and **line** sequence. In page sequence mode, the image is scanned three **times** (**first** for green, then for red, and **third** for blue). In line sequence mode, the **image** is scanned once.

A monochrome scan is a one-time scan. You have the **option** of selecting a dropout color (red, green or blue).

**Scanning Speeds**      In monochrome mode, the typical **scanning** speed is 6.5 milliseconds per line.

In color (page sequence, mode, the typical scanning speed is 10 milliseconds per line.

In color (line sequence, mode, the typical scanning speed is 35 milliseconds per line.

**Color Separation**      By light source (three colors: green, red, blue)

**Zooming**      You can reduce and enlarge an image from **50% to 200% of the original size in 1% increments**. **Thin** function is **selected** by a **software** command. Horizontal and **vertical** zooming are independent.

**Halftoning**      8 **bits** per pixel for each color

**Brightness**      Seven levels **selectable** by panel switch or **software command**

**Image Data**      1- to 8-bits per pixel, **selectable** through software

**Digital Halftoning**      **Bilevel** (mode A, B, C, or none)  
                                  **Quadlevel** (mode A or none)

**Tone Correction**      **CRT1, CRT2**; printer A, B, C

**Color Correction**      Impact-dot, thermal, ink-jet printer, color CRT **display**

**Direct Printing**      **ESC/P24-83C** M-dot with color); HP Paint-Jet

**Interfaces**      Standard interfaces: **RS-232C** serial, bidirectional parallel

Optional **interface**: **SCSI**

**Light Source**      Noble gas fluorescent lamps

**Safety Regulations**      UL/CSA, *TUV*

### Electrical Specifications

**Supply Voltage**      120 VAC +/- 10% (**nonswitchable**)

**Frequency**      49.5 to 60.5 **Hz**

**Power Consumption** **MAX 40 W**

**Insulation Resistance**      20 M ohms at 500 VDC between AC power line **and** chaws

**Radiation Noise**      **FTZ** FCC Class B

### Resistance Electricity

**Static Electricity**      10 KV (panel); 7KV, 150 pF, 150 ohms (metal)

## Environmental Conditions

<b>Temperature</b>	Operating: 5 to 35 degrees C Storage: -25 to 60 degrees C
<b>Humidity</b>	Operating: 10% to 80%; no condensation Storage: 10% to 85%; no condensation
<b>Dust</b>	Ordinary office or home conditions; extreme dust should be avoided.
<b>Illumination</b>	Do not <b>operate</b> under direct sunlight or near strong light source. <b>Reliability</b> under such <b>circumstances</b> cannot be guaranteed.

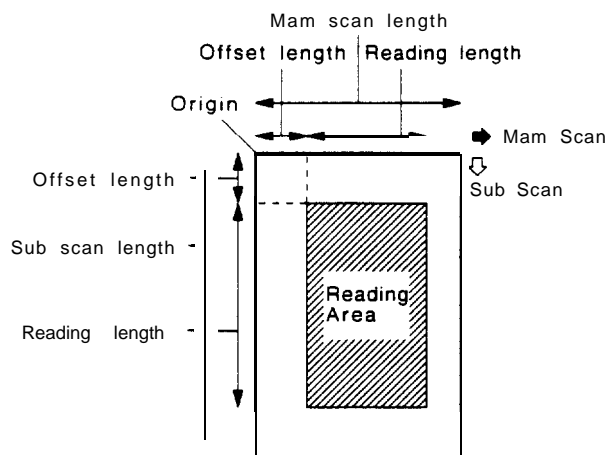
## Reliability

<b>Main Unit</b>	100,000 cycles MCBF
------------------	---------------------

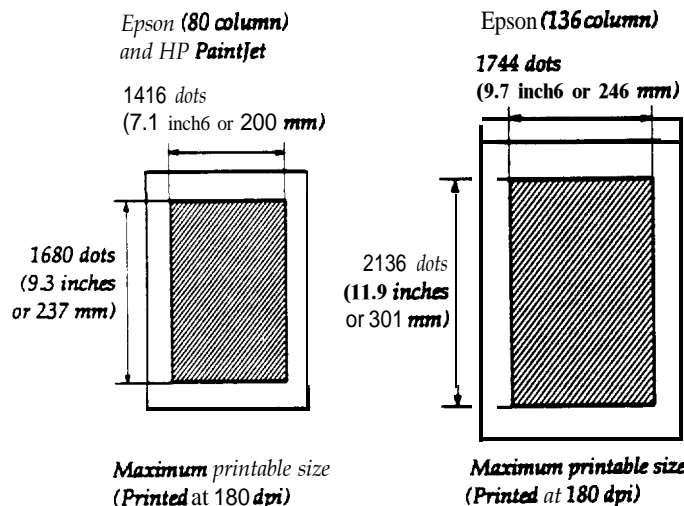
## Manuscripts

Use **refractive** type documents with smooth surfaces (such as **printing** and photographs).

## Printable Area



The maximum printable sizes available with the direct print function are as shown below.



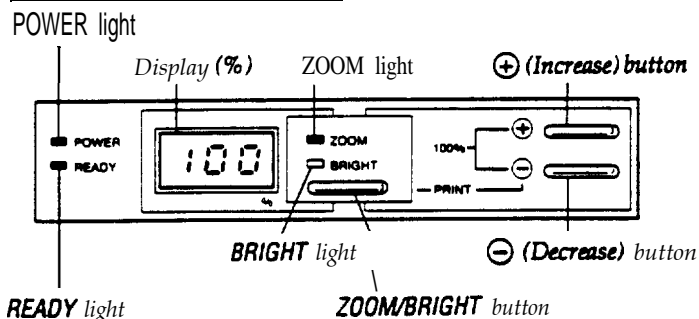
You can use any type of paper that is acceptable for your printer, including single sheets or continuous paper. Always make sure, however, that the paper you use is large enough to accommodate the printable size.

You can adjust the printed size of the image with the zoom function of the scanner. Details on the relation between zoom and printable size are explained later in this appendix.



**CAUTION:** Never use paper smaller than the printable size you choose. Printing beyond the paper can damage your printer.

## The Control Panel



## Indicator lights

### POWER (green)

On when the POWER switch is on and power is supplied.

### READY (green)

On when the scanner is ready to receive commands from the computer software. **Flickers** during scanning.

### ZOOM (orange)

On when the **display** is in ZOOM mode. Use the **+** (Increase) and **-** (Decrease) buttons to **change** the zoom **value** shown on the display when you are using the direct print function.

### BRIGHT (orange)

On when the display is in brightness mode. Use the **+** (Increase) and **-** (Decrease) buttons to change the **brightness** value shown on the display when you are using the direct print function.

## The display

### % Display (green, three-digit segment LED)

The **LED** display indicates the zoom value when the control panel is in zoom mode and indicates the brightness value when the control panel is in brightness mode. It also indicates when an error occurs in the scanner. The scanner is in the zoom mode when you first turn on the power.

## Buttons

### ZOOM/BRIGHT

Pressing this button selects either zoom mode or brightness mode. **ZOOM/BRIGHT** works only when the **READY** light is on (when the scanner is in the ready state). The scanner is in zoom mode when you **first turn** on the power. Use this button to select zoom or brightness only when you are using the direct **print** function.

**⊕ (Increase)**

Pressing this button increases the zoom value (in increments of 1%) between 50% and 200% and increases the brightness value in increments of 1 between seven values, from -3 (lightest) to 3 (darkest). Use this button to adjust zoom and brightness only when you are using the direct print function.

**⊖ (Decrease)**

Pressing this button decreases the zoom value (in increments of 1%) from 50% to 200% and decreases the brightness value in increments of 1 between seven values, from -3 (lightest) to 3 (darkest). Use this button to adjust zoom and brightness only when you are using the direct print function.

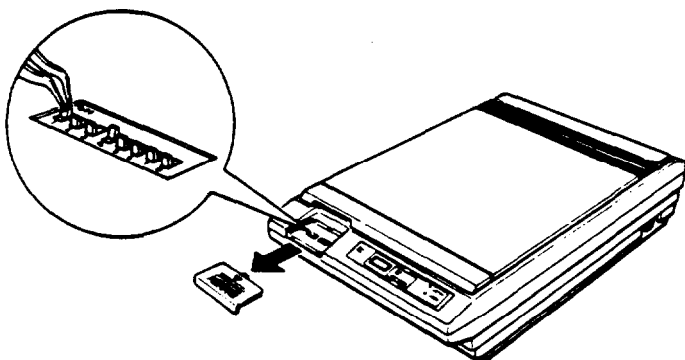
Pressing ZOOM/BRIGHT and ⊖ simultaneously enables the direct print function.

**Self test function**

By holding down ⊕ or ⊖ while you turn on the scanner, you can start the scanner's self test function. See Chapter 1 for more information.

**Direct print function**

The direct print function transfers a color image directly from your scanner to your printer. To use the direct print function you must have a **special** parallel interface cable. Consult your dealer to obtain the proper cable. Press down both the ZOOM/BRIGHT and ⊖ buttons to start the direct print function. See **Appendix D** for more information.

**Setting the DIP Switches****DIP switch 1 settings**

DIP switch 1 determines the serial interface protocols and the direct print function.

**Table 1. DIP switch 1 settings**

Switch No.	Description	ON	OFF	Factory Setting
1-1 1-2 1-3	Baud selection	See table 2.		ON OFF OFF
1-4	Stop bit selection	2 bit	1 bit	ON
1-5	Parity bit selection	Even parity	Odd parity	OFF
1-6	Parity check selection	Enable	Disable	OFF
1-7 1-8	Printer selection (for direct print)	See table 3.		OFF OFF

**Table 2. Baud rate**

1-3	1-2	1-1	Baud
OFF	OFF	OFF	19200
OFF	OFF	ON	9600
OFF	ON	OFF	4800
OFF	ON	ON	2400
ON	OFF	OFF	1200
ON	OFF	ON	600
ON	ON	OFF	300

**Table 3. Printer type for direct print**

1-8	1-7	Printer
OFF	OFF	ESC/P24-83C (80 Columns)
OFF	ON	Not used
ON	OFF	Paint-Jet (HP)
ON	ON	ESC/P24-83C (136 Columns)

DIP SW	2-8	2-7	2-6	2-5	2-4	2-3	2-2	2-1	1-7
ESC/P24 Impact dot (80 column)	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
ESC/P24 Thermal (80 column)	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
Paint-Jet	ON	ON	OFF	OFF	ON	ON	ON	ON	OFF
ESC/P24 (136 column)	ON	OFF	OFF	OFF	ON	OFF	ON	ON	ON

**DIP switch 2 settings**

DIP switch 2 determines the scanner operation normally required for the direct print function. For normal **scanning** operations, your scanner software sets these scanner functions and overrides the current DIP switch settings. Therefore, except for the direct print function, you are unlikely to **change** these switches from the factory settings.

**Table 4. DIP switch 2 settings**

Switch No.	Description	ON	OFF	Factory Setting
2-1 2-2 2-3	Set digital halftoning	See table 5.		ON OFF OFF
2-4 2-6	Set gamma correction	See table 6.		OFF OFF
2-6 2-7	Set color correction	See table 7.		ON ON
2-8 (1)	Parallel I/F	Uni-d (2)	Bi-d (3)	OFF

(1) SW 2-8 should be set on only for direct printing.

(2) Uni-d: Uni-directional (direct printing)

(3) Bi-d: Bidirectional

Table 5. Digital Halftoning Settings

a-2	2-1	Set Digital Halftoning
OFF	OFF	BI-level
OFF	ON	Halftone A
ON	OFF	Halftone B
ON	ON	Halftone C

Table 6. Gamma correction

2-5	2-4	2-3	Set Gamma Correction
OFF	OFF	OFF	CRT 1
OFF	OFF	ON	CRT 2
OFF	ON	OFF	Printer A
OFF	ON	ON	Printer B
ON	OFF	OFF	Printer C

Table 7. Color correction

2-7	2-6	Set Color Correction
OFF	OFF	Impact dot printer
OFF	ON	Thermal printer
ON	OFF	Ink-jet printer
ON	ON	Monitor (CRT)

Options

The optional units available for the ES-300C scanner are:

- Bidirectional interface board for IBM PC and compatibles
- **EpScan II** scanner utility program
- Apple Macintosh SCSI interface kit board
- **EpScan Mac** scanner program

Pin Assignments (Serial)

Pin No.	Signal Name	I/O	Description
1	FG	-	Frame ground
2	TXD	O	Transmit data
3	RXD	I	Receive data
4	RTS	O	Request to send
5	CTS	I	Clear to send
6	DSR	I	Data set ready
7	SG	-	Signal ground
8 to 19	NC		Not used
20	DTR	O	Data terminal ready
21 to 25	NC		Not used

Pin Assignments (Parallel)

Pin No.	Return Pin	Signal	I/O	Description
1	19	-STROBE	I(O)	-STROBE pulse to read in or send out data. Pulse width at receiving terminal must exceed 0.5 microseconds.
2-9	20-27	DATA g-7	I/O	These signals convey the 1st to 8th bits of data. High level indicates logical 1; low level indicates logical 0.
10	28	-ACKNLG	O(I)	Pulse of approximately 12 microseconds. Low level indicates that data has been received and the scanner is ready to accept more data.
11	29	BUSY	O(I)	When this signal is high, the scanner cannot receive data. The signal becomes high during data entry, during scanning, when the scanner is not ready, and during scanner error.
12-15	-	NC	-	Not used
16	-	GND	-	Logic ground level
17	-	C-GND	-	Scanner chassis ground
18	-	NC	-	Not used

Pin No.	Return Pin	Signal	I/O	Description
19-30	-	GND	-	Twisted-pair return signal ground level
31	-	INIT	I	When this signal level becomes low, the scanner is reset to its power-on state. This level is usually high. The pulse width at the receiving terminal must be greater than 50 microseconds.
32	-	NC		Not used
33	-	GND	-	Twisted-pair return signal ground level
34-35	-	NC		Not used
36	-	DIR	I	Low indicates that direction is Input.

## Zoom and Dot Areas

Zoom (%)	50 dpi	72 dpi	75 dpi	80 dpi
50	200 x 292	304 x 421	312 x 438	336 x 468
60	248 x 351	360 x 505	376 x 526	408 x 561
70	296 x 409	424 x 589	440 x 614	472 x 655
80	336 x 468	488 x 673	504 x 702	544 x 748
90	376 x 526	544 x 758	568 x 789	608 x 842
100	424 x 585	608 x 842	632 x 877	680 x 936
110	464 x 643	672 x 926	696 x 965	744 x 1029
120	504 x 702	728 x 1010	760 x 1053	816 x 1123
130	552 x 760	792 x 1095	824 x 1140	880 x 1216
140	592 x 819	856 x 1179	888 x 1228	962 x 1310
150	632 x 877	912 x 1236	952 x 1316	1016 x 1404
160	672 x 936	976 x 1347	1018 x 1404	1088 x 1497
170	720 x 994	1040 x 1432	1080 x 1491	1152 x 1591
190	760 x 1053	1086 x 1516	1144 x 1579	1224 x 1684
190	800 x 1111	1180 x 1600	1208 x 1667	1288 x 1776
200	848 x 1170	1224 x 1684	1272 x 1766	1360 x 1872

Zoom (%)	99 dpi	100 dpi	120 dpi	144 DPI
50	376 x 526	424 x 585	504 x 702	608 x 842
60	456 x 631	504 x 702	608 x 842	728 x 1010
70	528 x 737	592 x 819	712 x 982	856 x 1179
80	608 x 842	680 x 936	816 x 1123	976 x 1347
90	688 x 947	760 x 1053	912 x 1263	1096 x 1516
100	760 x 1053	848 x 1170	1016 x 1404	1224 x 1684
110	840 x 1158	928 x 1287	1120 x 1544	1344 x 1853
120	912 x 1263	1016 x 1404	1224 x 1684	1464 x 2021
130	992 x 1368	1104 x 1521	1320 x 1825	1584 x 2190
140	1064 x 1474	1184 x 1638	1424 x 1965	1712 x 2358
150	1144 x 1579	1272 x 1755	1528 x 2106	1832 x 2527
160	1224 x 1684	1360 x 1872	1632 x 2246	1952 x 2695
170	1296 x 1790	1440 x 1989	1728 x 2386	2080 x 2864
180	1376 x 1895	1528 x 2106	1832 x 2527	2200 x 3032
190	1448 x 2000	1608 x 2223	1936 x 2667	2320 x 3201
200	1528 x 2106	1696 x 2340	2040 x 2808	2448 x 3369

Zoom (%)	150 dpi	160 dpi	180 DPI	200 dpi
50	632 x 877	680 x 936	760 x 1053	848 x 1170
60	760 x 1053	816 x 1123	912 x 1236	1016 x 1404
70	888 x 1228	952 x 1310	1064 x 1474	1184 x 1638
80	1016 x 1404	1088 x 1497	1224 x 1684	1360 x 1872
90	1144 x 1579	1224 x 1684	1376 x 1895	1528 x 2106
100	1272 x 1755	1360 x 1872	1528 x 2106	1696 x 2340
110	1400 x 1930	1496 x 2059	1680 x 2316	1864 x 2574
120	1528 x 2106	1632 x 2246	1832 x 2527	2040 x 2808
130	1656 x 2281	1768 x 2433	1984 x 2737	2208 x 3042
140	1784 x 2457	1904 x 2620	2136 x 2948	2376 x 3276
150	1912 x 2632	2040 x 2808	2288 x 3159	2544 x 3510
160	2040 x 2808	2176 x 2995	2448 x 3369	2720 x 3744
170	2160 x 2983	2312 x 3182	2600 x 3580	2888 x 3978
180	2288 x 3159	2448 x 3369	2752 x 3790	3056 x 4212
190	2416 x 3334	2584 x 3556	2904 x 4001	3224 x 4446
200	2544 x 3510	2720 x 3744	3056 x 4212	3400 x 4680

Zoom (%)	240 dpi	300 dpi	320 dpi	360 dpi
50	1016 x 1404	1272 x 1755	1360 x 1872	1528 x 2106
60	1224 x 1684	1528 x 2106	1632 x 2246	1832 x 2527
70	1424 x 1965	1784 x 2457	1904 x 2620	2136 x 2984
80	1632 x 2246	2040 x 2808	2176 x 2995	2448 x 3369
90	1832 x 2527	2288 x 3159	2448 x 3369	2752 x 3790
100	2040 x 2808	2544 x 3510	2720 x 3744	3056 x 4212
110	2240 x 3088	2800 x 3861	2992 x 4118	3360 x 4633
120	2448 x 3369	3056 x 4212	3264 x 4492	3672 x 5054
130	2648 x 3650	3312 x 4563	3536 x 4867	3976 x 5475
140	2856 x 3931	3568 x 4914	3808 x 5241	4280 x 5896
150	3056 x 4212	3824 x 5265	4080 x 5616	4584 x 6318
160	3264 x 4492	4080 x 5616	4352 x 5990	4896 x 6739
170	3464 x 4773	4328 x 5967	4624 x 6364	5200 x 7160
180	3672 x 5054	4584 x 6318	4896 x 6739	5504 x 7581
190	3872 x 5335	4840 x 6669	5168 x 7113	5808 x 8002
200	4080 x 5616	5096 x 7020	5440 x 7488	6120 x 8424

Zoom and Dot Areas (Continued)

Zoom (%)	400 dpi	480 dpi	600 dpi	
50	1696 x 2340	2040 x 2808	2544 x 3510	
60	2040 x 2808	2448 x 3369	3056 x 4212	
70	2376 x 3276	2856 x 3931	3568 x 4914	
80	2720 x 3744	3264 x 4492	4080 x 5616	
90	3056 x 4212	3672 x 5054	4584 x 6318	
100	3400 x 4680	4080 x 5616	5096 x 7020	
110	3736 x 5148	4488 x 6177	5608 x 7722	
120	4080 x 5616	4896 x 6739	6120 x 8424	
130	4416 x 6084	5304 x 7300	6624 x 9126	
140	4760 x 6552	5712 x 7826	7136 x 9828	
150	5096 x 7020	6120 x 8424	7646x10639	
160	5440 x 7488	6528 x 8985	8160 x 11232	
170	5776 x 7956	6936 x 9547	9964x11934	
180	6210 x 8424	7344 x 10108	9176 x 12636	
190	6456 x 8892	7752 x 10670	9699x13339	
200	6800 x 9360	8160 x 11232	10200 x 14040	

Note: The maximum horizontal scan reading length is 4096 dots.

### Installation / Support Tips

#### Software

1. When operating the **ES-300C** scanner with an IBM compatible computer, you must install the following:
  - o Software that supports the **ES-300C** scanner or Epson's Epscan II scanner program.
2. When operating the **ES-300C** scanner with an Apple Macintosh computer, you must install the following:
  - o **Software** that supports the **ES-300C** scanner or Epson's Epscan II scanner program.

**Note:** To achieve the best final image, you may need to make multiple scans at various scanner settings.

#### set up

if you are using the scanner with an IBM-compatible computer, connect the interface cable to the bidirectional parallel port on the computer. Designate the interface board on the computer as LPT2. Some systems may require that a bidirectional parallel port be installed.

**Note:** The **parallel** cable must be a bidirectional cable.

If you are using the scanner with a Macintosh computer, **install** the SCSI interface board in the interface board slot. Then connect the interface cable from the computer to the SCSI connector on the scanner.

Information Reference List

Engineering Change Notices

None.

Product Support Bulletins

None.

Related Documentation

TM-ES-300C		ES-300C Service Manual
4000167		ES-300C User's Manual

Technical Information Bulletins

None.